

BAY AREA DIGITAL SEISMIC NETWORK

(HFN: The Hayward Fault Network)

Award 1434-95-G2547

Program Element: II.7

Final Technical Report

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Research supported by the U.S. Geological Survey (USGS), Department of the Interior, under USGS award number 1434-95-G2547. The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government.

INTRODUCTION

A network of borehole-installed wide dynamic range seismographic stations is being developed cooperatively with the U.S. Geological Survey with support from USGS, EPRI, LLNL, and LBNL. The focus of the network and associated research is to improve working models for this very hazardous but poorly understood fault, and to integrate the data into the real-time monitoring and alert system being developed at the UCB Seismographic Station. After initial operation with portable, stand-alone event recorders, 24-bit data acquisition and communication platforms are now being installed and telemetered data streams are entering the BDSN archives at UCB. This investigation of the fine-scale dynamics of the Hayward fault zone is under the direction of T. V. McEvilly and R. A. Uhrhammer.

The network as envisioned will consist ultimately of 24-30 stations, 12-15 each north and south of the San Leandro seismic gap, managed respectively by UCB and USGS. Six-component borehole sensor packages, with three channels of acceleration and three of velocity, designed and constructed at UCB and LBNL, are being installed in the entire network. Recording and telemetry equipment will differ between north and south, but the resulting data will be shared in near real-time and archived at the UCB/USGS Northern California Earthquake Data Center, and will thus promptly be made available to the research community. The HFN data will also be available in real-time to the Rapid Earthquake Data Integration (REDI) Project. The Bridge Safety Project of the California Transportation Department has made it possible for us to install sensor packages in 15 boreholes into bedrock at five East Bay bridges cooperatively with L. Hutchings of LLNL. In the 1995-96 period, two of these sites have become telemetered HFDN sites. Subsequent to the end of this NEHRP project on 30Jun96, we have continued with other support to expand the network to additional sites so that the end of 1996 should see at least eight sites online via frame-relay telemetry to the UCB data acquisition/archive system.